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ABSTRACT

This study examined gender and aptitude distinctions (average versus below average) among developmental college students in task value, reported use of learning strategies, and academic achievement. The sample consisted of 286 developmental students from a community college in the Midwest, of whom 129 were female. Two measures of achievement were obtained, course grade and semester grade point average. Aptitude, perceptions of self-regulated learning strategies, and student perceptions of task value were also measured. Although prior research has indicated gender differences in students' reported use of learning strategies for higher achieving students, there have not been many studies of low achieving students. In this study, differences were found in use of typical study strategies, with females reporting greater use of these strategies. Gender differences were also found in achievement, with females earning higher grades than males. Some of this difference might be attributed to differences in utilization of learning strategies. The paper discusses implications for instruction of these findings. (Contains 1 table and 14 references.) (SLD)

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Gender Differences in Self-regulated Learning, Task Value, and Achievement in Developmental College Students

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Gender Differences in Self-regulated Learning, Task Value, and Achievement in Developmental College Students

More than 650,000 undergraduates, or one-third of entering freshmen in U.S. colleges and universities, enroll in developmental Reading, Writing, or Mathematics courses each year (Boylan, 1995). They are identified variously as remedial, provisionally-admitted, at-risk, or underprepared. Developmental students are, by definition, low achievers, since they comprise the subgroup of students who have the least chance of achieving academic success, based on standardized achievement or placement test scores (Boylan, Bonham, & Bliss, 1994). A potential problem is the tendency to view developmental students as a homogeneous population with regard to skills, attitudes, and abilities. However, these students bring to the classroom a wide range of academic skills and attitudes, as well as prior experiences, that play a role in learning and achievement. In a study of community college students, Williams and Hellman (1998) reported a relationship between academic achievement and important self-regulated learning strategies. In addition, although Beyer (1999) reported gender differences in self-evaluation skills in regular college student populations, the question remains as to whether self-regulation differences are found in developmental college student populations. Because developmental students comprise an increasingly large segment of the postsecondary student population, college instructors may benefit from developing an awareness of distinctions among these students. Therefore, examination of differences within this unique population is warranted. Our purpose was to examine gender differences in academic task value and self-regulated learning strategies in this subgroup of students while controlling for differing levels of aptitude.

In prior research, task value has correlated positively with cognitive strategy use; higher levels of task value were associated with more frequent use of critical thinking skills and self-regulated learning strategies (Pintrich & Garcia, 1994). Bandura (1986) and others have proposed that students' value for academic tasks is influenced by prior learning and past achievement. With developmental college students, past academic achievement is typically low; thus, these students might report low levels of academic task value, which in turn may influence effective use of learning strategies and achievement.

Other studies provide evidence of the relationship between achievement and the use of self-regulated learning strategies (Schunk & Zimmerman, 1994;Zimmerman & Martinez-Pons, 1990). Further, many studies indicate that strategy use is also related to gender (Ablard & Lipschultz, 1998; Beyer, 1999; Carr & Jessup, 1997; Lundeberg, Fox, & Puncochar, 1994; Zimmerman & Martinez-Pons, 1990). For example, in studies of high achievers, females reported greater use of self-regulated learning strategies as compared to males, especially for verbal learning tasks (Ablard & Lipschultz, 1998; Zimmerman & Martinez-Pons, 1990). Although researchers have addressed differences between males and females with regular college student populations, questions remain regarding gender differences in task value and self-regulated learning in developmental college students.

In the present study, we examined gender and aptitude distinctions (average versus below average) among developmental college students in task value, reported use of learning strategies, and academic achievement. We expected that developmental students, by definition low achievers, might display the same gender differences in reported use of self-regulated learning strategies as their higher-achieving peers. Further, we expected higher aptitude developmental students to report more frequent and skillful use of learning strategies as well as higher task value.

Methods

Participants

Our sample consisted of 286 developmental students from a community college in the Midwest. Students may be placed in developmental courses because of poor prior academic performance, low aptitude, or both. These students were placed in developmental courses based on prior achievement and/or scores on the standardized ASSET aptitude test. For this sample, the mean score on the ASSET was 34 (17%ile) with a standard deviation of 5. The maximum score was 49 (87%ile) and the minimum score was 8 (2 %ile). One-hundred and seventy-six participants scored in the average range, within 1 standard deviation of the mean, on the ASSET, while 109 scored below average.

One hundred and ninety-nine were female and 87 were male. The average age was 26. Sixty-two percent were African-American, 18% were Caucasian, 4 % were Asian, 7% were Hispanic, and 9% indicated other or failed

to respond. The gender and racial composition of the sample was consistent with the general student population of the community college. Most students were in health-related majors (15%) or undecided (62%); others reported a wide range of majors.

Measures

Achievement. Two measures of achievement were obtained, course grade and semester grade-point-average (GPA). In our analyses, we used the grade for the course in which students completed the instrument, because students were instructed to use that course as a frame reference for responding to survey items. Each course instructor provided final course grades. In addition, the first researcher obtained post-semester GPA from college records in order to compare students using a more global measure of achievement.

Aptitude. The community college places entering students in developmental courses on the basis of their ASSET scores. The Reading, Writing, and Numerical Skills components are administered to entering students. The Writing Skills component consists of 36 multiple-choice items that measure students' knowledge in the areas of usage and mechanics, sentence structure, and rhetorical skills. The Reading Skills component consists of 24 multiple-choice items that measure reading comprehension at both the literal and inferential levels. The Numerical Skills test contains 32 multiple-choice items designed to measure basic operations and problem solving skills involving arithmetic. Raw scores are associated with percentile scores derived from a norming group.

Perceptions of use of Self-regulated Learning strategies. The Self-efficacy for Self-regulated Learning Scale (Gredler & Garavalia, 2000) was used to measure students' perceptions of self-regulated learning. The scale consists of 26 items that factor into five subscales: General Organizing and Planning ("finish assignments by deadlines"), External Regulation ("deciding I have a command of the subject matter based on my completion of all the instructor's assignments"), Typical Study Strategies ("take notes during lectures in my courses"), Environmental Restructuring ("study for my courses in a quiet room or area"), and Recall Ability ("remember information presented in class"). Items are measured on a Likert scale with response options ranging from 1 (not well or not at all) to 5 (very well or very often). Items on the External Regulation subscale are reverse coded; that is, 5=1, and so on. The rationale for this procedure is that student reliance on other sources to structure one's study efforts does not contribute to self-regulation. Cronbach alphas for the five factors, respectively, were .87, .68, .74, .74, and .73 (Gredler & Garavalia, 2000).

Task value. The Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, Garcia, & McKeachie, 1991) 6-item subscale was used to measure task value--students' perceptions of the importance, interest, and utility of the course content or assignment. Students respond to questions, such as "I think I will be able to use what I learn in this course in other courses," using a 7-point Likert scale with response options ranging from 1(not at all true of me) to 7 (very true of me). The task value score is computed by averaging a student's ratings on the six items. The subscales of the MSLQ have demonstrated stability in numerous studies and evidence of content validity and internal structure is provided in the MSLQ manual (Pintrich et al., 1991).

Procedures

Data were collected over two semesters, Spring 2001 and Spring 2002. Students completed the instruments during the tenth week of the semester so that students would have sufficient experience in courses to make judgments about learning strategy use. Surveys were administered during regular class periods and required approximately 20 minutes to complete. The first researcher provided a brief explanation of the study, obtained informed consent, and administered the surveys. In addition to the survey, students were asked to provide demographic data including gender, age, and race. Some students were enrolled in more than one developmental course. Therefore, approximately 10% of the completed surveys were duplicates which were later deleted from the study. For these students, the first completed survey was retained. At the end of the semester, archival data (e.g. semester GPA, course grades, aptitude scores) were obtained from students' college records.

To control for differing levels of aptitude, students were divided into two aptitude groups -- average and below average on the basis of ASSET scores. Because ASSET scores are normed on a large sample, percentile scores reflect the normal curve and the characteristics of the normal curve may be used to categorize students. As such, we classified students in this study as average if the ASSET scores fell above the 16th percentile and below the 84th percentile. ASSET scores below the 16th percentile resulted in a "below average" classification.

Results

Means and standard deviations for course grade, post-semester GPA, and scores on the five SESRL factors are reported in Table 1. Mean SESRL subscale scores were computed by adding ratings for each item and dividing by the number of items in the subscale. F-statistics associated with Type III error were evaluated to control for differences in cell sizes between groups.

Our first question was whether developmental college students differed in task value and reported use of self-regulated learning strategies across gender and aptitude groups. A 2 X 2 factorial MANOVA was used to compare students. Results indicated a significant multivariate effect for gender only, Wilk's lambda=.92, $F(6, 276)=4.03$, $p<.001$. Therefore, we examined the univariate analyses and found gender differences for Typical Study Strategies, $F(3, 281)=16.25$, $p<.0001$, and Task Value, $F(3, 281)=5.98$, $p<.05$. Means and standard deviations are reported in Table 1.

In addition, we investigated gender differences in achievement across aptitude groups. A 2 X 2 factorial MANOVA was used to compare students across gender and aptitude on final course grade and post-semester GPA. Results indicated a significant multivariate effect for gender, Wilk's Lambda=.97, $F(2, 280)=4.33$, $p<.01$, and aptitude, Wilk's Lambda=.97, $F(2, 280)=4.92$, $p<.008$, but not for the interaction. Therefore, we examined the univariate analyses. Females earned significantly higher course grades than males, $F(3, 281)=8.30$, $p<.004$. In addition, females earned higher GPAs for the semester, $F(3,281) = 5.83$, $p<.02$. For post-semester GPA, students also differed across aptitude, $F(3, 281)=8.11$, $p<.005$. Means and standard deviations are reported in Table 1.

Discussion and Implications for Education

Although prior research indicates gender differences in students' reported use of learning strategies for higher achieving students, studies with lower achieving students are not as prevalent. A purpose of the present study was to investigate potential gender differences in developmental college students. We found differences in students' reported use of Typical Study Strategies only, with females reporting greater use of these strategies than males. Within the aptitude subgroups, females were similar; however, larger differences were found between average and below average aptitude males. This finding is of particular interest, because we also found gender differences in achievement, with females earning higher grades than males. Part of the difference in achievement might be attributed to differences in utilization of learning strategies. Also, typical study strategies can be taught; therefore, this finding has particular significance for instructors of developmental courses. Supplementing instruction with suggestions for studying and note taking could improve the performance of relatively lower-achieving males.

Interestingly, for three of the Self-regulated Learning factors--General Organizing/Planning, Typical Study Strategies, and Environmental Structuring--females, regardless of aptitude, reported higher scores (albeit, non-significant differences) than males. In contrast, males reported slightly higher use of External Regulation than females across both aptitude groups, indicating that males might rely on others for learning support to a greater extent than females. In addition, below-average males reported less Recall Ability than other students. Therefore, instructor support may be more important for male students. Future research with a larger sample is warranted. No significant differences were indicated in students' reported use of General Organizing and Planning Strategies or Environmental Structuring; however, the below-average groups indicated slightly higher scores for Environmental Structuring.

The students in our sample were all lower-achieving students who, generally, have not experienced academic success in the past. Other findings suggest that students' value for academic tasks is related to the degree to which students have been successful academically. Therefore, we expected to find low levels of task value among this population of students with little experience with regard to academic success. Interestingly, our findings suggest that these students value academic tasks to the same degree as other students (M=5.54; Pintrich et al., 1991). We did find differences between males and females in academic task value, with females reporting greater task value than males. Interest in and value for the learning activities may be another factor that contributed to the gender differences we found in achievement.

In our sample, we found that females outperformed males on both achievement indicators, final course grade and post-semester GPA. Aside from differing task value and use of typical study strategies, other motivational

factors may account for gender differences. Future research should expand the scope of this investigation by examining other affective variables that potentially influence achievement. As studies explore differences within this seemingly homogeneous population, college instructors may be able to identify malleable characteristics and behaviors that lead to higher achievement in developmental college students.

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Table 1

Means and standard deviations for task value, SESRL factors, and achievement for gender and aptitude subgroups

Aptitude level	Mean		Standard deviation	
	Female	Male	Female	Male
Task Value[1]				
Average	5.96	5.49	1.02	1.24
Below Average	5.79	5.61	1.09	1.08
General Organizing/planning[2]				
Average	3.80	3.69	0.58	0.66
Below Average	3.76	3.66	0.62	0.53
External Regulation[2]				
Average	2.43	2.48	0.68	0.54
Below Average	2.41	2.48	0.65	0.52
Typical Study Strategies[2]				
Average	4.30	4.10	0.76	0.71
Below Average	4.28	3.67	0.70	0.94
Environmental Structuring[2]				
Average	3.26	3.25	0.74	0.66
Below Average	3.33	3.32	0.71	0.69
Recall Ability[2]				
Average	3.61	3.64	0.73	0.61
Below Average	3.60	3.47	0.77	0.69
Final Course Grade[3]				
Average	2.72	2.28	1.25	1.39
Below Average	2.60	2.10	1.12	1.24
Post-semester GPA[3]				
Average	2.65	2.52	0.94	1.02
Below average	2.46	1.99	0.91	0.94

Note. N for each group: female/average = 124, female/below average=75, male/average=52, male/below average=34.

[1] Scale equals 1 (not at all true of me) to 7 (very true of me)

[2] Scale equals 1 (not at all or not well at all) to 5 (very often or very well)

[3] Scale equals 0.00 (Failing) to 4.00 (A; Excellent)

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